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about the middle or latter half of the fourteenth century. 11. The Ahau, or Katun, was a period of twenty-four years; and the great cycle, of three hundred and twelve years; also the series commenced with a Cauac instead of a Kau year. 12. Brasseur was right in supposing that the work originated in Peten. In a future issue we hope to present a review of this work. — J. W. P. [578]

Craniometry for general use. — Confusion of the worst kind exists among the craniologists in the following particulars, — the base line or orienting of the skull, what marks or characters have anthropologic significance, and the comparative value of the various parts. We have even a French school and a German school. Both of these have been simplifying their methods of late. The Germans held a craniometric conference at Munich in 1877 (*Corr.-blatt*, 1878, No. 7), one in Berlin in 1880 (*Corr.-blatt*, 1880, 104-106), and finally came to an agreement at Frankfurt in 1882. The result of the last meeting now appears (*Corr.-blatt*, No. 1, 1883), signed by the most distinguished craniologists in Germany. A model-chart in blank accompanies the report, with spaces for number, source, sex, age, skull, countenance, and indices. The number of measurements required are very reasonable, and they are not difficult to make. — (*Corr.-blatt. deutsch. ges. anthrop.*, xiv., No. 1.) J. W. P. [579]

EGYPTOLOGY.

Art in Egypt. — In a discriminating review of Perrot's great work, Miss A. B. Edwards says, M. Perrot "has so thoroughly entered into the spirit of ancient Egyptian culture, so firmly grasped the central idea of ancient Egyptian belief, that he has been enabled, not only to trace those influences through every ramification of Egyptian art, but, from a purely philosophic stand-point, to survey and treat his subject as a co-ordinate whole. This it is which gives pre-eminent value to the present work. This it is which we here find attempted and achieved for the first time. And, in truth, it is only within the last few years that such a work has become possible." — (*Academy*, Feb. 17.) H. O. [580]

Pithom-Succoth. — The Egyptian exploration fund of England has signalized its advent to Egyptian soil by a discovery promising great results. M. Naville, on the suggestion of Maspero, director of the Boolak museum, began exploration at Tel-el-Maschu-

ta, — a heap of ruins beside the Sweet-water Canal, south of the railway, east of and near Mahsamah, and about fifteen miles west of Ismailia. He writes, Feb. 12, 1883, "I have a piece of good news to begin with. Tell-el-Maschuta is Pithom, or, in other words, the temple of Tum, in the city or region of Thuku, which Dr. Brugsch has identified with Succoth. . . . I can give it for certain from the inscription of a statue belonging to a priest of the temple." M. Naville also found a Roman milestone with the inscription, —

DD NN VICTORIBVS
MAXIMIANO ET SEVERO
IMPERATORIBVS ET
MAXIMINO ET CONSTANTINO . .
NOBILISSIMIS CAESARIBVS.
AB ERO IN CIVISMA
MI VIII P.

'Ero' would be the transcription of Ar (Ari or Aru), which means the storehouse, and which is found on the statue of the priest. His titles are "the chief of the storehouse of the temple of Tem [Tum] of Theku [Thuku]." Reginald Stuart Poole and Miss A. B. Edwards regard this as a momentous discovery. — (*Academy*, Feb. 24, March 3.) H. O. [581]

Love-songs. — How the ancient Egyptian young men and maidens confessed their love, and rejoiced or mourned, may be learned from Maspero's translation of the hieratic papyrus of Turin, published in facsimile by Pleyte and de Rossi, pl. 79-82. This had been translated by Fr. Chabas (*Rec. of past*, vi. 156); but a rearrangement of the broken parts of the papyrus has enabled Maspero to gain a clearer view of the whole. Maspero sees a clear resemblance between the Hebrew and the Egyptian conception of love, and suggests that a comparison of the Hebrew with the Egyptian language of love would explain some points now obscure. — (*Journ. asiatique*, Jan.) H. O. [582]

Geographical lists of Karnak. — The only text of these lists open to students is the very faulty one in Les listes géogr. des pylones de Karnak, etc., edited by Mariette in 1875. In an open letter to Brugsch, which is accompanied by two pages of facsimiles, Golenischeff offers many corrections of these lists. He says, "While these lists are of the greatest importance, the study of them in the faulty copies in Mariette's Karnak is not to be recommended." — (*Zeitsch. ägypt. sprache*, 3 heft, 1882.) H. O. [583]

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Bureau of ethnology.

Explorations in the Mississippi valley. — Mr. P. W. Norris, on behalf of the bureau, devoted last summer to the examination of mounds and other antiquities of the valley of the Mississippi. His explorations were confined chiefly to eastern Iowa and south-western Missouri, though trips were made to Wisconsin, Minnesota, and Mississippi. Among the results of the work, we mention the following: —

Several somewhat extensive groups of effigy-mounds were discovered in north-western Iowa. One of the groups bears a strong resemblance to one referred to in William Pigeon's singular volume.

In the same region ancient earth-works were found in which the enclosing wall is of the form given in De Bry's figures of the Palisades.

From a mound opened in Wisconsin, a copper kettle, silver bracelet, silver rings, and a silver locket were taken, indicating its modern origin. Two new localities of Indian pictographs were found, and the drawings copied.

Besides stone implements, pottery, pipes, and other evidences of aboriginal art usually found in mounds, two very nicely carved statuettes were obtained in Mississippi. Mr. Norris's collection consists of nearly a thousand specimens.

Professor Cyrus W. Thomas is in immediate charge of these mound-explorations; and the work of the past season is represented by a collection of nearly three thousand five hundred specimens.

Department of agriculture.

Results of field experiments with various fertilizers. — Professor Atwater has given the results of a large

number of experiments of a special and general nature, carried on at his suggestion in different parts of the country for the purpose of studying the demands of our chief crops for various fertilizing materials. In a general discussion of the results, he concludes that corn responds but little to nitrogen, being able to gather its small supply from natural sources, and, for this reason, is not to be regarded as an exhausting, but more nearly a renovating crop. It responds, however, liberally to supplies of mineral fertilizers, phosphoric acid or potash being the dominant under different circumstances, depending upon soil and season. Potatoes have been found to respond uniformly to all the fertilizing ingredients; and they have less capacity than corn for gathering from natural sources. The same is apparently true for turnips. For other crops the number of experiments does not justify conclusions. Practically the largest average yield for all crops was obtained with the complete fertilizers. Nitrate of soda, and superphosphate, yield less than potash and superphosphate, which is significant of the value of potash, and the propriety of adding more of it to our fertilizers. Nitrate of soda, and potash, proved the least efficient. Separately, the nitrate of soda was rarely useful, the sulphate of lime frequently, the muriate of potash very often, and the superphosphates generally. Soils vary widely in their capacity for supplying food to crops, and consequently in their demands for fertilizers; and there are many conditions affecting their action after application. The only way to find what a particular soil wants is by careful observation and experiments.

Lawes and Gilbert's paper on the sources of nitrogen in crops, read at the meeting of the American association at Montreal, is appended to Professor Atwater's report. After maintaining that there is much more experimental proof of the fact that the soil is the source of nitrogen for all crops than that any can be assimilated from the air, a comparison is made between the comparatively recently broken-up soils of America and those of England, which have been long under arable cultivation. Analyses of four soils from the west show a much greater percentage of nitrogen than was found in those at Rothamsted; or, in general terms, the surface-soils of our territories are more than twice as rich in nitrogen as the average Rothamsted soil. In the face of this fact, the difficulty arises as to why less wheat can be raised upon the rich soils of the north-west than upon the worn-out soils of England. As far as they are informed, these writers attribute this result to vicissitudes of climate, and lack of care in cultivation.

This conclusion can hardly be considered as satisfactory; and it remains a question worthy of the greatest attention, as also whether these now rich soils are not being impoverished by the present method of cultivation.

NOTES AND NEWS.

— The gold medal of the Royal astronomical society has this year been awarded to Dr. Benjamin Apthorp Gould, for his '*Uranometria Argentina*.' In his address before the society, Feb. 9, on the presentation of the medal, the president, Mr. E. J. Stone, lately her Majesty's astronomer at the Cape of Good Hope, and now the director of the Radcliffe observatory at Oxford, made allusion to the number and variety of Dr. Gould's astronomical papers, which treat of almost all branches of the science, and es-

pecially to his reduction of D'Agelet's observations, — a work of considerable extent and of great value. All these were not without their influence in guiding the decision of the council in the award of the medal; but their attention was chiefly concentrated on Dr. Gould's direction of the work of the observatory at Cordoba, in the Argentine Republic. The principal part of this work may be considered an extension of Argelander's scale of magnitudes to all the stars which can be seen by a good eye, without instrumental aid, between ten degrees north declination and the south pole, together with a series of charts exhibiting on a stereographic projection the positions of all these stars to the sixth magnitude, and a proposed revision of the boundaries of the southern constellations. This was the work first undertaken by Dr. Gould on his arrival at Cordoba, with four assistants, thirteen years ago. Some indication of the magnitude of the work may be obtained from the fact that the number of estimations made for the formation of the '*Uranometria Argentina*' exceeded forty-six thousand. Dr. Gould has carefully discussed the results of these estimations of stellar magnitude, and compared them with nearly all the materials which were available for the purpose; and, in particular, he has compared his estimations of the magnitude of the brighter stars with results obtained from a discussion of the photometric observations of the second Herschel and of Seidel.

The maps published by Dr. Gould are fourteen in number, one of which is a skeleton-map showing the proposed revision of the boundaries of the southern constellations. The materials collected in this uranometry are far more complete and accurate than any which previously existed; and Dr. Gould has therefore been naturally led to discuss their bearing on those great questions of the constitution of our stellar universe which offer so fascinating and inexhaustible a field for philosophical speculation. The results which he has obtained are in general accordance with those of previous investigators of the subject. It appears to be clearly proved that distance is one of the most important factors in producing differences of apparent brightness in the stars; but the agreement between the number of stars of different magnitudes, and the number which might be expected if these changes of apparent brightness depended solely on distance, is not perfect over any large range of magnitudes. There appears to be a decided preponderance in the number of the brighter stars. It is possible that this preponderance may be partially due to the conventional scale of magnitudes not being a truly photometric scale. Dr. Gould has been led, after a careful discussion of his own observations, to infer that the preponderance of the brighter stars is due to the existence of a stellar cluster consisting of some four or five hundred stars, of which our own system is supposed to be a member.